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for

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ERGONOMIC HANDLE WITH THUMB SUPPORT

#### FIELD OF THE INVENTION

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The present invention relates to ergonomic handles that work in concert with the human hand to provide more effective manipulative operation and other functions such as safety and comfort for the user. More particularly, the present invention relates to ergonomic handles for hand held implements or other devices that are gripped by a user's hand.

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#### BACKGROUND OF THE INVENTION

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Ergonomic handles for hand tools or implements of various designs and configurations are known in the prior art. For example, in knives and like implements, known configurations require the user's thumb to be either wrapped around the handle thus reducing the amount of force that may be applied to the blade or implement, or placed directly on top of the blade, implement or handle in line with the centerline thus reducing the user's overall grip on the handle. Some examples of such devices are disclosed in U.S. Pat. No. 5,365,666; U.S. Pat. No. 4,578,864; U.S. Pat. 6,460,356; U.S. Pat. No. Des. 257,686; U.S. Pat. 6,502,314, U.S. Pat. 6,701,624 and U.S. Pat. No. Des. 363,336.

What the prior art does not disclose is a new ergonomic handle of the

5 present invention which substantially departs from the conventional concepts and designs, and in so doing provides a user with greater comfort and control when grasping the handle.

## 10 SUMMARY OF THE INVENTION

The present invention provides a new ergonomic handle with lateral thumb support that provides a user with greater comfort, safety and control when using a hand tool or device, such as a knife, embodying the invention herein.

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In some aspects, the present invention provides an ergonomic handle comprising an elongate member with a proximal end and an opposite distal end and being connectable to a tool or device, and a thumb support member projecting laterally from the elongate member adjacent the proximal end wherein the thumb support member accommodates a user's thumb as the user grasps the handle in one hand. The thumb support member may be positioned such that the user's thumb on the grasping hand rests naturally upon the support member and is laterally offset from the elongate member of the handle. In some aspects of the handle, the thumb support member defines a concave support surface for accommodating the user's thumb. In some embodiments of the handle, the support member defines a generally concave recess having a support surface and peripheral wall portions for accommodating and locating the user's thumb, the peripheral wall portions providing resistance to sliding movement of the thumb relative to the support member. The recess may be dimensioned for a close fit with the thumb.

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In some aspects, the present invention provides a knife with an ergonomic

5 handle comprising a blade member having a cutting edge and a handle with a  
laterally projecting thumb support near the blade end to accommodate a user's  
thumb while the user grasps the handle. The thumb support maintains the user's  
thumb in a natural and ergonomic position, laterally offset from the centerline of  
the handle as the user's hand grasps the handle. The thumb support provides for  
10 an efficient grip and more control over the knife during use, and it further  
provides a thumb-force transmitting pressure platform which enables a user to  
comfortably apply greater cutting pressure to a knife blade than would otherwise  
be possible without the provision of the thumb support. The invention further  
provides a knife handle with a unique thumb-force transmitting platform enabling  
15 the application of a comfortable and appreciably "sure-handed" cutting force to  
the blade.

Accordingly, in some embodiments, the present invention provides a knife  
comprising a blade member with a cutting edge, and a handle comprising an  
20 elongate member with a blade end and an opposite distal end. The handle is  
connected to the blade member at the blade end. The handle further includes  
thumb support member projecting laterally from the elongate member adjacent  
the blade end for accommodating a user's thumb as the user grasps the handle.  
The thumb support member may be positioned such that the user's thumb on the  
25 grasping hand rests naturally upon the support member and is laterally offset from  
the handle. In some embodiments, the support member defines a support surface  
for accommodating the user's thumb. The support surface may be generally  
concave. In further embodiments, the support member defines a generally  
concave recess with a support surface and peripheral wall portions for  
30 accommodating and locating the user's thumb, the peripheral wall portions  
provide resistance to sliding movement of the thumb relative to the support

5 member. The recess may be dimensioned for a close fit with the thumb of an average adult.

The present invention further provides an ergonomic handle for a knife comprising an elongate member with a blade end and an opposite distal end. The  
10 handle is connectable to a knife blade adjacent the blade end. The handle includes a thumb support member projecting laterally from the handle adjacent the blade end for accommodating a user's thumb as the user grasps the handle. The thumb support member may be positioned such that the user's thumb on the grasping hand rests naturally upon the support member and is laterally offset from the  
15 handle. In some embodiments, the support member defines a support surface for accommodating the user's thumb. The support surface may be generally concave. In further embodiments, the support member defines a generally concave recess with a support surface and peripheral wall portions for accommodating and locating the user's thumb, the peripheral wall portions provide resistance to  
20 sliding movement of the thumb relative to the support member. The recess may be dimensioned for a close fit with the thumb of an average adult.

The present invention further provides a hand implement comprising an operable tool member for performing the particular function of the implement and  
25 a handle comprising an elongate member with a proximal end and a distal end. The handle is connected to the tool member at the proximal end. The handle includes a thumb support member projecting laterally from the elongate member adjacent the proximal end for accommodating a user's thumb as the user grasps the handle. The thumb support member may be positioned such that the user's  
30 thumb on the grasping hand rests naturally upon the support member and is laterally offset from the handle. In some embodiments, the support member defines a support surface for accommodating the user's thumb. The support

5 surface may be generally concave. In further embodiments, the support member  
defines a generally concave recess with a support surface and peripheral wall  
portions for accommodating and locating the user's thumb, the peripheral wall  
portions provide resistance to sliding movement of the thumb relative to the  
support member. The recess may be dimensioned for a close fit with the thumb of  
10 an average adult.

#### BRIEF DESCRIPTION OF THE DRAWINGS

15 Embodiments of the invention will now be described with reference to the  
accompanying drawings, in which:

**Fig 1** is a perspective view of a preferred embodiment of the present  
invention showing a hand tool or implement, in this case a knife, with an  
20 ergonomic handle having a thumb support. In this case, the handle is designed for  
use by a right handed user;

**Fig. 2** is a side elevation view of the left side of the ergonomic handle of  
Fig. 1;

25 **Fig. 3** is a side elevation view of the right side of the ergonomic handle of  
Fig. 1;

**Fig. 4** is a front elevation view of the ergonomic handle of Fig. 1;

30 **Fig. 5** is a rear view of the ergonomic handle of Fig. 1;

5           **Fig. 6** is a top plan view of the ergonomic handle of Fig. 1;

**Fig. 7** is a bottom plan view of the ergonomic handle of Fig. 1;

**Fig. 8** is a top plan view of the ergonomic handle of Fig. 1 being held in a  
10   user's right hand; and

**Fig. 9** is a perspective view of the ergonomic handle of Fig. 1 being held  
in a user's right hand.

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#### DETAILED DESCRIPTION

          The invention disclosed herein may be practiced in embodiments in many  
different forms. Shown in the drawings and described herein is a preferred  
20   embodiment of the ergonomic handle of the present invention in conjunction with  
a knife. However, it is understood that the present disclosure is an exemplification  
of the principles of the invention and does not limit the invention to the illustrated  
embodiment.

25           For ease of description, a hand tool or implement, in this case a knife, with  
an ergonomic handle embodying the principles of the present invention is  
described as shown in the accompanying drawings, where the knife is positioned  
in its customary cutting or slicing orientation. Terms such as upper, lower,  
horizontal, vertical, etc., are used herein with reference to this position and  
30   orientation.

5           Referring now to the drawings, and more particularly to FIGS. 1-7, there is shown a hand tool or implement, in this case a knife 10 which generally comprises an implement portion or blade member 12, and a handle 16 comprising an elongate member or hand grasping portion 30 having a proximal or blade end 20 connected to the blade member, and an opposite distal end 22.

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          While the ergonomic handle of the present invention is described and illustrated herein in conjunction with a knife, this should not be taken to limit the invention to such application. The ergonomic handle of the present invention may be used and applied in conjunction with a multitude of tools, devices or  
15 applications which require a user to grip the device in at least one hand. For example, the ergonomic handle of the present invention may be applied to devices including (but not limited to) hammers, axes or hatchets, ice axes, handles for hand saws, handles for electric circular saws, bicycle handle grips, fishing rod handles, rowing oars, cutlery, pot and pan handles, cup handles, fireplace pokers,  
20 mop handles, vacuum cleaner handles, dough rolling pins, walking canes, walkers, scissors, folding knife handles, wrench handles, pliers, gardening shears, gardening loppers, gardening tools, utility knife handles, hand held staplers, or joy stick or video game controllers.

25           Referring again to the knife in FIGS. 1-7, the blade 12, which can be of any desired shape or form, is preferably made of stainless steel, or like material, and includes a cutting edge 14 and a shank portion 18 (shown by hatched lines) which extends into the interior of the handle 16, adjacent the blade end 20, to fixedly connect the blade 12 to the handle 16.

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          The handle 16 further comprises a lateral projection or thumb support member 32 adjacent the blade end 20 of the handle and which projects laterally

5 from the handle. The thumb support member accommodates and supports the thumb of an average adult user as the user grasps the handle 16.

The handle 16 is preferably ergonomically shaped and dimensioned to fit comfortably within the user's gripping hand. Thus, the lower side of the handle 16  
10 includes a first narrow or thin portion 40 near the blade end 20 for accommodating a user's index finger thereby providing a grip stop to reduce slippage of the handle backward in the user's hand, a broad portion 42 approximately midway along the handle's length around which the user's second and third fingers grip, and a second narrow or thin portion 44 near the distal end  
15 22 for accommodating the user's little finger thereby providing a grip stop to reduce slippage of the handle forward in the user's hand. The portions 40, 42 and 44 merge into one another by smooth curves. Similarly, the distal end 22 of the handle 16 is curved downward relative to the rest of the handle.

20 As shown in FIGS. 1 & 6, the thumb support member 32, on its upper surface, defines a generally concave indentation or recess 50 having a support surface 52 and being of a size to accommodate an average adult user's thumb as the user grasps the handle. The recess is offset laterally from the centerline 54 of the handle 16 by an amount sufficient to allow the user's thumb to rest naturally  
25 upon the support surface 52 while the user's hand is gripping the handle. The recess 50 is defined by a peripheral wall 51 which can extend completely or substantially around the recess, but preferably the peripheral wall 51 extends around the front and sides of the recess such as wall portions 56, 58 and 60: wall portion 58 is adjacent centerline 54 of the handle 16; wall portion 56 is adjacent  
30 the front of the recess; and wall portion 60 is opposite to wall portion 58. Preferably, the peripheral wall 51 is higher at the front than at the back of the recess and tapers down in height from the front of the recess along the sides



5       thereof. Accordingly, as shown in FIGS. 8 and 9, the thumb of a user can be seen  
to rest naturally upon the thumb support member 32, being accommodated and  
located therein, and being laterally offset from the elongate member of the handle  
(FIG. 8). The indentation 50 provides a close fit with an average adult user's  
thumb for a comfortable fit and increasing the user's overall grip on the handle 16  
10       for a particular level of effort. Furthermore, the thumb support member 32  
provides increased control over the knife 10 by enabling the user's thumb to exert  
a downward axial force 70 to the handle to counteract rotation of the knife about  
its longitudinal axis while the knife is cutting into hard material. The thumb  
support member also enables the user to exert a downward force to the blade via  
15       the thumb of the grasping hand while maintaining the thumb in a comfortable and  
ergonomic orientation. The thumb support provides for an efficient grip and more  
control over the knife during use, and it further provides a thumb-force  
transmitting pressure platform which enables a user to comfortably apply greater  
cutting pressure to the knife blade.

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      The handle 16 may be made of any suitable material, such as wood, rubber,  
silicon, metal, molded plastic, thermoplastic elastomer, or like material, and may  
be conventionally secured to the blade. Preferably, the handle is made of hard,  
molded plastic, which may be injection molded directly around the shank 18 of  
25       the blade 12, using known injection molding processes, to affix securing the blade  
12 to the handle 16. Alternatively, the handle 16 may comprise of two or more  
molded plastic parts that may be glued together around shank 18, as is known in  
the art of knife manufacture, to securely enclose the shank within the handle 16.

30       The ergonomic handle of the present invention provides a larger handle  
surface area that reduces pressure points on the grasping hand, resulting in a more  
comfortable grip and more control over the tool, implement or device having such

5 handle.

The embodiment of the present invention illustrated herein is that of a handle for use in the right hand of a user. It is apparent that a handle for use in the left hand of the user may be readily obtained by translating the drawings herein  
10 into their respective mirror images.